

## **Section II. (REMARKS)**

The pending claims in the application are claims 1, 3-5, 7, 8, and 28.

In the response to the May 8, 2006 Office Action, as filed on June 1, 2006, applicants requested that the Examiner rejoin the method of use claims upon allowance of the corresponding product (composition) claims. Towards that end, applicants amended the method of use claims during prosecution so that said claims are consistent with the allowed product claims. In addition, applicants requested rejoinder of claim 32, which depends directly from claim 28, in the response filed on September 25, 2007.

Below is a side-by-side comparison of the allowed composition claims and the method of use claims that applicants request be rejoined. Independent method of use claim 12 includes all of the limitations of allowed claim 1, claims 14-18 and 21-27 depend directly or indirectly from claim 12 and where appropriate were amended to be consistent with the pending product claims, and claim 32 is a method of using the composition of claim 28 and depends directly therefrom.

Allowed composition claim	Method of use claim requested to be rejoined
1. A SCF-based removal composition consisting of <i>at least one supercritical fluid (SCF), at least one co-solvent, and at least one reducing agent, wherein the at least one reducing agent consists of at least one of hydrogen gas, formaldehyde, formalin, boranes, diboranes, amine stabilized boranes, amine stabilized alanes, and tetraalkyl amines of BH<sub>4</sub> and AlH<sub>4</sub>, and wherein the at least one SCF consists of a fluid selected from the group consisting of carbon dioxide, oxygen, argon, krypton, and xenon.</i>	12. A method of removing ion-implanted photoresist from a substrate having same thereon, said method comprising contacting the substrate having the ion-implanted photoresist thereon with an SCF-based composition consisting of <i>at least one SCF, at least one co-solvent, and at least one reducing agent</i> , for sufficient time and under sufficient contacting conditions to remove the ion-implanted photoresist from the substrate <i>wherein that at least one reducing agent consists of at least one of hydrogen gas, formaldehyde, formalin, boranes, diboranes, amine stabilized boranes, amine stabilized alanes, and tetraalkyl amines of BH<sub>4</sub> and AlH<sub>4</sub>, and wherein the at least one SCF consists of a fluid selected from the group consisting of carbon dioxide, oxygen, argon, krypton, and xenon.</i>
3. The removal composition of claim 1, wherein the SCF consists of <i>carbon dioxide</i> .	14. The method of claim 12, wherein the SCF consists of <i>carbon dioxide</i> .
	15. The method of claim 12, wherein the contacting conditions comprise pressure in a range of from about 1500 psi to about 4500 psi.
	16. The method of claim 12, wherein said contacting time is in a range of from about 1 minutes to about 20 minutes.

4. The removal composition of claim 1, wherein the co-solvent consists of a species selected from the group consisting of <i>at least one straight-chain C<sub>1</sub>-C<sub>6</sub> alcohol, branched C<sub>1</sub>-C<sub>6</sub> alcohol, and an amine.</i>	17. The method of claim 12, wherein the co-solvent consists of a species selected from the group consisting of <i>at least one straight-chain C<sub>1</sub>-C<sub>6</sub> alcohol, branched C<sub>1</sub>-C<sub>6</sub> alcohol, and an amine.</i>
5. The removal composition of claim 1, wherein the co-solvent consists of <i>isopropanol</i> (IPA).	18. The method of claim 12, wherein the co-solvent consists of <i>isopropanol</i> (IPA).
7. The removal composition of claim 1, wherein the composition is non-fluoride containing.	
8. The removal composition of claim 1, wherein the SCF-based removal composition consists of <i>about 60.0 wt% to about 90.0 wt% SCF, about 10.0 wt% to about 30.0 wt% co-solvent, and about 0.01 wt% to about 5.0 wt% reducing agent</i> , based on the total weight of the composition.	21. The method of claim 12, wherein the SCF-based composition consists of <i>about 60.0 wt% to about 90.0 wt% SCF, about 10.0 wt% to about 30.0 wt% co-solvent, and about 0.01 wt% to about 5.0 wt% reducing agent</i> , based on the total weight of the composition.
	22. The method of claim 12, wherein the contacting step comprises a cycle including (i) dynamic flow contacting of the SCF-based composition with the substrate having the ion-implanted photoresist, and (ii) static soaking contacting of the SCF-based composition with the substrate having the ion-implanted photoresist thereon.
	23. The method of claim 22, wherein said cycle comprises alternating and repetitively carrying out dynamic flow contacting (i) and static soaking contacting (ii) of the substrate having the ion-implanted photoresist thereon.
	24. The method of claim 12, further comprising washing the substrate, at a region at which the ion implanted photoresist has been removed, with a SCF/isopropanol water wash solution in a first washing step, and with a SCF in a second washing step, to remove residual precipitated chemical additives in said first washing step, and to remove residual precipitated chemical additives in said washing step, and to remove residual precipitated chemical additives and/or residual alcohol in said second washing step.
	25. The method of claim 24, wherein the SCF is SCCO <sub>2</sub> .
	26. The method of claim 12, wherein the containing conditions comprise temperature in a range of from about 50°C to about 90°C.
	27. The method of claim 12, wherein the photoresist was exposed to a high-dose ion-implantation process, wherein the high-dose ion implantation rate is greater than $1 \times 10^{15}$ atoms/cm <sup>2</sup> .

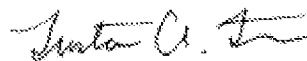
28. A SCF-based removal composition comprising at least one co-solvent, at least one reducing agent, and ion-implanted photoresist residue material, wherein the reducing agent comprises at least one of hydrogen gas, formaldehyde, formalin, boranes, diboranes, amine stabilized boranes, amine stabilized alanes, and tetraalkyl amines of $BH_4$ and $AlH_4$ .	
	32. A method of removing ion-implanted photoresist from a substrate having same thereon, said method comprising contacting the substrate having the ion-implanted photoresist thereon with the SCF-based composition of claim 28.

As recited in MPEP 821.04, in order to be eligible for rejoinder, a claim to a nonelected invention must depend from or otherwise require all the limitations of an allowable claim. Comparing the allowed product claims relative to the method of use claims in the above table, it can be seen that the method of use claims include the same limitations as the product claims. Accordingly, applicants request that the Examiner allow claims 12, 14-18, 21-27 and 32.

### **Conclusion**

Based on the foregoing, claims 1, 3-5, 7, 8, 12, 14-18, 21-28 and 32 are in form and condition for issuance. Authorization is hereby given to charge any deficiency in applicable fees for this response to Deposit Account No. 13-4365 of Moore & Van Allen PLLC. If any additional issues remain, the Examiner is requested to contact the undersigned attorney at (919) 286.8090 to discuss same.

Respectfully submitted



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By: \_\_\_\_\_

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